

ESKRIDGE (J.T.)

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FORMERLY POST-GRADUATE INSTRUCTOR IN NERVOUS  
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## NERVOUS AND MENTAL DISEASES OBSERVED IN COLORADO.\*

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IN a communication to the Philadelphia Neurological Society in September, 1887, I gave the results of three years' observation of the climate of Colorado on nervous and mental diseases, together with the views of several physicians in various portions of the State, practicing at altitudes varying from four thousand to ten thousand feet. In the present paper I can add three years' additional observations on the same subject. Two years of this time have been spent in Denver, where the field of observation has been much enlarged, owing to the size of the city and the hospital accommodations, which have enabled me to study cases from nearly every portion of the State.

In my former paper I stated that "among the inhabitants of Colorado we find more leisure in many places and a greater tendency to keep late hours and indulge in various

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dissipations than is common farther east. Many go to Colorado in search of health, and the separation from relatives and friends, added to the enforced idleness, is a source of worry and a certain amount of nervousness. Some go to better their fortunes, and, for these, investments in mines and various other uncertain speculations cause anxiety and unwonted excitement. Many who had lived quiet lives and kept regular hours for rest and eating in the Eastern States go to Colorado, overindulge in the use of alcohol and tobacco, and try their nervous systems by late and irregular hours. After allowing for all the modifying influences, exclusive of climate, I feel confident that by a careful comparison of certain nervous disturbances at sea-level with those of like nature met with in high and dry mountainous regions a difference will be found to exist; but the difference is much less than the exaggerated statements made by the laity here concerning the influence of Colorado climate on the nervous system would at first lead us to believe. That among the people of Colorado we have more of what is termed nervousness than exists in the same number of inhabitants at sea-level there can be no doubt, but consumptive invalids form a greater proportion of the population in Colorado than is found farther east."

Most of the statements just quoted hold good to-day in certain portions of Colorado, especially in Colorado Springs, where I resided when the observations were made. In Denver, where I have made my observations during the past two years, there are less idleness and fewer consumptives in proportion to the population, but more business worry and bustle, and probably more irregular living, than in places like Colorado Springs and Manitou, where a greater proportion of the inhabitants have gone more for health than for business. If we take the people of Denver and compare them with a similar number in one of the wide-



awake and business-going cities of the East, such as New York or Chicago, we shall find their habits and methods of doing business so nearly alike that but little difference in influence on the nervous system, except climatal, will be found to exist in Denver that is not active in the Eastern cities.

Most of my observations on the influence of Colorado climate on the nervous system have not been conducted by strictly scientific methods, but rather by comparing clinical observations made in Colorado with those made in Philadelphia, extending over a number of years. It must be borne in mind that conclusions reached by this method are distorted more or less by personal equation, the degree of inaccuracy depending largely upon the carefulness and faithfulness of the observer. A few facts, however, have been ascertained by strictly scientific procedure. While practicing in Philadelphia I devoted considerable time to surface-temperature observation, both in health and in disease. The number of observations amounted to several thousands, taken over various portions of the body. During the last four or five years I have continued these observations in Colorado, limiting the area mainly, but not exclusively, to the surface of the head. After allowing for changes in the mercurial thermometers, which time invariably effects, I find that the normal head temperature in Colorado is about half a degree (F.) higher than in Philadelphia.

I have also endeavored to compare the surface temperature of the body at various altitudes, but observations made at high altitudes, especially on Pike's Peak, owing to danger to my health in ascending high mountains, had to be intrusted to others, and I fear have but little value. No one unaccustomed to making surface temperature observations realizes the amount of care necessary to prevent inac-

curacies. Time and time again I have requested my assistants to make such temperature observations for me, and I have repeated the observations a few minutes later and have gotten different results, the difference varying from a quarter of a degree to a degree.

Increased surface temperature in Colorado is what most clinical observers had inferred long before my observations, but the supposed condition, scientifically confirmed, becomes a fact and may help to explain many modifying influences the climate has on the functions of the organs of the body.

*Mental Work.*—I have often asked myself the question, and not infrequently propounded the query to others, whether a person is able to do more or less mental work in Colorado than at sea-level. The kind of mental work I refer to is hard study for several hours each day, continued over several weeks. The answer I have obtained from most persons whom I have interrogated on this subject is that they have not compared the effects and were undecided as to the results. I have tried to compare the effects on my own person, as I gave a few hours each day to hard mental work for many consecutive weeks in each year while practicing in Philadelphia, and much of the time since coming to Colorado, when my health would permit of it. I have devoted more or less time each day to mental work. I feel that the conclusions at which I have arrived from personal experience may be open to objection. My physical power of endurance is much lessened since I contracted lung trouble, for which I came to Colorado, and, in consequence, mental effort sooner results in fatigue. I have found that three or four hours each day devoted to continuous mental work and extended over a period of a few weeks so weakens and prostrates me that I am compelled to give up all reading, except light literature, for a time. When I have

felt fresh and have had a zest for study, I have thought I could accomplish more in a given time than I was able to do at a low altitude; but this is merely surmise on my part. The only persons who can approximate an accurate solution of this subject are those who, in good health, accustomed to do a regular amount of study East, have come to Colorado in the same state of health to pursue similar studies to those engaged in while East.

*Sleep and Insomnia.*—Under this heading in my former paper, the unanimous opinion of the physicians was that sleep was more easily obtained, more continuous, and more refreshing in Colorado than at sea-level. We have several classes in which to study the effects of the climate on the production of sleep, or as a cause of insomnia. Among these may be mentioned the tourist, including the business adventurer; the tired and overworked, both mentally and physically; and the health-seeker, especially the consumptive person.

On tourists or adventurers the effects are as varied as the temperaments of the individuals, and are modified by the habits and life of such persons while in Colorado. The restless ones among this class, who are never satisfied, but must have continuous excitement in scenery or some other diversion, rarely get good and refreshing sleep in Colorado unless tired out by physical exhaustion, when they run the risk of developing a temporary irritable heart, disturbances in digestion, and headache. Such persons frequently leave the State complaining bitterly of the evil effects of the climate on healthy individuals.

Those of this class who take things leisurely, more as a natural result of their temperaments than from the warnings of others who have been indiscreet, do not over-exercise, and allow themselves time for regular meals and rest, rarely fail to get prolonged and refreshing sleep.

About the only practical deductions to be derived from a study of the experiences of the tourists in Colorado are what to avoid in the invalid class.

*The Overworked.*—In this class are included the tired business and professional man, whose mental strain compels sedentary habits, neglect of proper exercise, and irregular hours for eating and sleeping, and the lady of family cares, as well as she whose vigor has been sapped by the unreasonable exactions of fashionable life. To these a visit to Colorado means, in the majority of cases, if too much physical exercise is not indulged in, prolonged and refreshing sleep. Such persons coming here from the East regain their strength rapidly; but we must not attribute all the good results to Colorado climate. Habits and modes of living for the time being are changed. The business man leaves worry and care behind; the professional man, relieved of the trials, annoyances, and anxious cares of his profession, seeks rest amid new scenes, while she who had been sore pressed with family cares and social obligations changes these for a quiet life. Much of the relief comes from "the change," irrespective of climate.

Having had an opportunity for a number of years, before coming to Colorado, of studying the effect of sea-shore resorts on this class of persons, I found a greater proportion unrelieved from insomnia than I find to be the case with those who seek rest and change among the mountains of Colorado, provided that a sufficiently quiet life is led here. According to the writer's experience, it is a rare exception for insomnia to continue in such persons after coming to Colorado, excluding a few cases of supposed active hyperæmia of the brain or irritable heart, reference to which will be made later.

*Health-seekers.*—I have found no reasons for changing the statements that I made three years ago: "That for the



majority of persons, especially for the consumptive invalids, sleep is more easily obtained, more continuous, and more refreshing in Colorado than in the Eastern States. The tired, ill-nourished, and overworked person, who spent sleepless nights East, goes to Colorado and finds, as his nutrition improves, that sleep is prolonged and unusually refreshing. Cool nights throughout the summer season, as a rule, enable persons to get much more sleep and rest in Colorado than can be obtained at sea level during this portion of the year. Some, on going to Colorado, are unable to sleep well for a few nights, or perhaps weeks, while others get prolonged and refreshing sleep from the first. Those belonging to the latter group are much the more numerous. Those whose sleep is disturbed on first going to places of considerable altitude usually enjoy a sufficient amount of sleep for several months after they begin to rest well, but I doubt whether these are ever able to sleep as much as those who rest well on first going to high mountainous regions. There is a popular and almost universal belief among the laity, and physicians share this opinion, that one wears out the good effects of the climate after a few years' continuous residence in Colorado. I am firmly convinced, both from observations and from inquiries among those who have resided here a considerable length of time, that there is a great deal of truth in this prevailing opinion. Those who lead idle or sedentary lives are, I think, more liable to become sleepless after a considerable stay here than those who keep profitably employed in work that requires more or less exercise. Much severe mental work at high altitudes would be, I think, more likely to be followed by sleeplessness than the same done at sea-level. Tobacco, alcohol, tea, and coffee, if indulged in immoderately, apparently injuriously affect sleep more at high altitudes than the same indiscretions do at low elevations."

While the majority of persons who come to Colorado get refreshing sleep for a number of months, and in some instances for years, yet there are a few nervous, hysterical individuals who find great difficulty in getting refreshing sleep here. They are not able to sleep a sufficient number of hours, and the time for repose is frequently spent in broken sleep. Cases of insomnia in the East, due to active hyperæmia of the brain that is not relieved by rest, sleep poorly, I think, in Colorado. At least this has been my experience with cases of the kind. Dr. Anderson, of Colorado Springs, and Dr. Sears, of Leadville, both say that cases of cerebral hyperæmia sleep well at each of the last-named places. I am inclined to believe that they have not distinguished, in their communications to me, between active and passive hyperæmia. I am led to believe, from observations, that cases of passive hyperæmia, or venous stasis of the brain, due to mental overwork, worry, loss of sleep, etc., are able to obtain abundant and refreshing sleep. I believe also that insomnia due to organic brain changes or active hyperæmia is made worse in Colorado. In my former paper I stated that "it is very difficult to say whether medium (4,000 to 6,000 feet) elevations, or the higher (7,000 to 11,000 feet), are the better for cases of insomnia." During the last three years I have known of a few persons who have come to the medium elevations, slept well for a time, then, becoming more or less sleepless, have gone to the higher altitudes, where they again slept well. I think such cases are rare. But, on the contrary, we frequently find that persons who become troubled with insomnia in the higher altitudes, where they had slept fairly well for a length of time, coming to the medium elevations of Colorado obtain refreshing and prolonged sleep. Pure air, good weather, and the amount of bright sunshine, even in winter, inviting persons to live outdoors a good portion of the time and take more

exercise than they were accustomed to do East, are important agents in enabling one to get refreshing sleep in Colorado. What lessened atmospheric pressure has to do with inducing sleep, making it more profound, as some who reside in very high altitudes maintain, has yet to be determined. Those who have had experience with the pneumatic cabinet, and have noted the sensations experienced by their patients, may be able to enlighten us on this subject.

*Irritable Nervous System, or Nervousness.*—The opinions of the physicians of Colorado differ widely respecting the influence of the climate on a delicate and irritable nervous system, some believing the influence is great, and others that it is slight, if any exists.

An additional three years' experience with nervous affections found in Colorado enables me to emphasize what I said on this subject three years ago: "From what I have learned from observations and inquiry, I have no hesitation in saying that the inherent nervous temperaments—not those who are nervous from malnutrition, which the climate may and does remove in many instances—are made worse by a prolonged residence in Colorado. Further, I believe, and I think I am expressing the opinions of a number of physicians there, that many who are not usually considered nervous become so after a prolonged residence in Colorado." The nervousness may manifest itself by sleeplessness, irritable heart, with a tendency to passive congestion, especially of the gastro-intestinal mucous membrane, by a loss of appetite, failure of strength, lessened power of endurance, and considerable loss in body weight. Some suffer from restlessness and irritability of temper, and some complain of inability to concentrate the mind long on any subject. Persons thus affected and contemplating making their home in Colorado should not try to overcome their sensations by a prolonged and uninterrupted stay here, but they

should try to spend a month or two each year at sea-level, which is almost invariably followed by an improved condition of the nervous symptoms.

Dr. Reed, of Colorado Springs, informed me that he had observed that child-bearing nervous women, after a prolonged stay in Colorado, recover less satisfactorily from the trying ordeals of the lying-in room after the birth of the second or third child than they had done after the first. The intensely bright sunshine, and the great amount of it, which is the boast of Coloradians, the dry atmosphere, and the winds, it seems to me, are factors in irritating an already irritable nervous system. Some have tried to lay the cause at the door of lessened atmospheric pressure. This may have something to do with it, but how much it is impossible to say.

Before beginning this paper I was informed that Dr. H. A. Lemen, who has practiced medicine in Colorado for a number of years and paid especial attention to diseases of women, would write on the influence of climate on women. I regret that his engagements have been such that he has been unable to contribute a paper on this subject. That the nervous system of woman is more irritable than that of man every one will admit, and that she in consequence suffers more from the irritating effects of our climate is self-evident. My note-book shows that a large percentage of those who suffer from the irritating effects of this climate is composed of women; but I will not go into details, hoping that Dr. Lemen, at some future time, will take up this subject and elaborate it.

*Hysteria*.—Three years ago I was able to give the results of the experience of various physicians with this protean disease as it occurs in the smaller towns in the State, and of my observations of it in Colorado Springs. My conclusions were then that it was of lighter form, shorter dura-



tion, and much less frequent in proportion to the population than observed in the large Eastern cities, but at the same time I endeavored to account for the infrequency from the habits of the people and their surroundings, and expressed an opinion that had we in Colorado all the conditions of a large Eastern city favorable for the development of hysteria, it would be found more frequent here than it is in cities at sea-level. Two years' experience in Denver, where conditions favoring the development and manifestation of the disease exist, convinces me that hysteria is not infrequent here, and that it is found in all forms, from the mildest to the severest. I have witnessed three cases in the male. From my present experience I am unable to say that the disease is of shorter duration and yields more readily to treatment than is found in the eastern portion of this country.

*Chronic Alcoholism and the Opium Habit.*—What must impress itself on every observer in Denver is the immense number suffering from the chronic effects of alcohol and opium. Other causes than climatal may account for this. A large proportion of those whom I have had an opportunity to interrogate on this subject admit having been addicted to the habit before coming to Colorado. Denver during the last few years has been the Mecca sought by those broken down financially, and in this class alcoholism and the opium habit are common. Whether there is anything in the climate of Colorado tending to indulgence in alcohol and opium more than what is found at sea-level I am unable to say. Whether a larger proportion of the population here has begun the over-use of alcohol, or contracted the opium habit, in Colorado, than is found at sea-level, many years of carefully studied statistics must answer.

*Chorea.*—The physicians who favored me with their ex-

periences with chorea three years ago were almost unanimous in their opinions that the disease is more frequent, severer, of longer duration, and less amenable to treatment in Colorado than at sea-level. I then expressed the opinion, from an experience with the disease in Colorado Springs, that it was unfavorably influenced by the climate.

Some of the physicians who were kind enough to answer my inquiries stated that they invariably sent all their cases of chorea to lower altitudes, with decided benefit to their patients.

During the past three years I have had the opportunity of treating and seeing in consultation numerous cases of chorea in Denver. So far, without a single exception, they have yielded to the ordinary treatment for this disease. Some cases have developed at low altitudes, and from force of circumstances have been brought to this city. These have yielded to treatment, but in one case the movements at first seemed to be exaggerated by the change to this altitude. My treatment has invariably been, in cases where the choreic movements were great, full doses of antipyrine or phenacetin until the movements had nearly ceased, when Fowler's solution of arsenic has been carried to the point of toleration, the dose reached in some cases being eighteen or twenty drops thrice daily. My former statements will have to be modified by saying that chorea at this altitude (about five thousand feet) seems to yield about as readily as at sea-level, and with no greater tendency to relapses.

*Neuralgia.*—A more extended experience convinces me that neuralgia is a much less troublesome and less frequent disease in Colorado than in low malarial districts. I have seen several cases of malarial neuralgia rapidly yield after coming to Colorado.

Migraine seems to be favorably modified on first coming to Colorado, but the attacks are not broken up, and, after

a few months, the trouble returns and seems to be more persistent than it was at low altitudes.

In some of these sufferers, upon a return to a low altitude after they had spent some months in Colorado, long intervals with entire freedom from the disease have resulted.

*Multiple Neuritis.*—During the last six months I have seen six cases of this disease. So far I have been unable to discover any points of difference between the course, severity, and duration of the disease here and at low altitudes.

*Epilepsy.*—In my former communication the answers of the physicians in reply to my inquiries concerning the influence of the climate on epilepsy varied so greatly that no conclusion could be arrived at; some believed that the disease was unfavorably influenced by a resort to this climate, that it quite frequently originated here and proved rebellious to treatment; others thought it was uninfluenced by the climate, while some thought it was a very infrequent disease in Colorado.

I have had an opportunity of personally studying twenty-one cases of epilepsy since coming to Colorado. Sixteen of the twenty-one originated at low altitudes outside of Colorado, leaving five cases which began in some portion of the State. Of the Colorado group, the age at which the disease began was at the second, third, fourth, seventh, and thirtieth year, respectively. Of the imported cases, three began at the second, two at the fourth, six at the tenth, three at the sixteenth, one at the thirty-third, and one at the thirty-seventh year.

*Causes.*—Of the Colorado group, in one, injury to head from a fall; in one, hydrocephalus, and in three the cause is unknown. Of the imported cases, gastro-intestinal disturbances in infancy seemed to be the exciting cause in four, injury to head in five, and unknown in eight.

*Sex.*—Colorado group, three males, two females. Imported cases, there were fifteen males and one female.

*Severe or Light Attacks.*—In the Colorado cases three suffered only from the light or *petit mal*, and in two the *grand* and *petit mal* were found. In the imported cases all suffered from the severer manifestations of the disease, although a few also had occasional *petit-mal* attacks.

*Time.*—Of the Colorado cases, in one the seizures were limited to the waking hours, and in the other four they occurred both diurnally and nocturnally. Of the imported cases, in only one were the seizures of the diurnal character, and in the other fifteen the attacks occurred indifferently both day and night. So far I have not seen a case of epilepsy in Colorado in which the attacks were limited to the sleeping hours.\*

*Mental Effect.*—Of the Colorado cases, there is decided mental failure in three, and in two the mind seems unaffected. Of the imported cases, insanity has developed in four and mental failure in ten, and in two the mind seems well preserved. In all of the Colorado cases treatment has seemed to be attended with the usual results found at low altitudes. The result of the climate on the sixteen imported patients is hard to determine. Two were excitable and unmanageable at times before coming to Colorado. These were soon decided to be insane after coming to this State, and one has since died in a condition of status epilepticus. On the fourteen others the climate had no appreciable effect. It will be observed that only one female epileptic is found among the sixteen coming from a distance to Colorado. This is accounted for from the fact that female epileptics rarely leave home. I have been unable to perceive

\* Since this was written, a case of epilepsy with attacks only in the early morning hours (four or five o'clock) has come under my observation.



that the climate of Colorado, especially at Denver, materially modifies the course of epilepsy, except, it may be, for a short time after the arrival of such patients here, when the disease is frequently benefited if the person keeps sufficiently quiet.

*Insanity.*—Since coming to Denver I find it even more difficult to determine the influence of Colorado climate on the insane and in the causation of insanity than I did while practicing in Colorado Springs. Of the one hundred cases of insanity of which I have records of having seen during the past year in this city, about fifty per cent. were insane before coming to Colorado, and ten of the remaining fifty became insane in other portions of Colorado than Denver. During June of the present year I saw nine cases of insanity, six of which, so far as could be learned, developed in Colorado, but only four of these in Denver. From the 1st to the 19th of August I saw sixteen cases, only seven of which developed in Colorado. In July I saw six cases, three of which developed in Colorado and three outside the State.

This State has not as yet made adequate provision for the care of her insane, and some of the adjoining States and Territories are behind Colorado in caring for their insane, and, in consequence, there is a small insane nomadic population that travel from State to State and from city to city, as they can succeed in obtaining from county commissioners free transportation. As jury trials are expensive to adjudge persons of unsound mind insane, it sometimes happens that the cheapest way to get rid of such persons is to send them to an adjoining county or State.

Until Colorado succeeds in establishing ample accommodation for her insane, and until we can get the records of every case of insanity developing in the State and leaving it, it will be impossible to ascertain our insane population.

It is evident that the proportion of our insane population in this State is rapidly increasing, but how fast statistics give us no idea.

Some patients with insanity, especially of the maniacal form, are benefited on being removed to a lower altitude. The number of cases of insanity developing in Colorado and taking a depressive form far outnumber those of an expansive nature. As yet there is no private asylum in the State where the insane with means to defray their own expenses can be cared for, and in consequence all such are sent to Eastern asylums.

*Temporary Effects of High Altitudes.*—Many go to the summit of high mountains and experience no inconvenience, while others at times can perform such feats with impunity, but at other times, depending probably upon the condition of their health, find mental or physical symptoms are produced thereby, and yet a third class is almost invariably inconvenienced by high altitudes. The following case reported in a former paper is to the point: "An intelligent young man, a tutor, in excellent health, started from Manitou early one morning in June, 1887, to go on horseback to the summit of Pike's Peak. The distance is about twelve miles. He had eaten a fair breakfast, but took no stimulants that day, either before or during the trip. He accomplished the ascent of the mountain in a few hours, in company with several others, and experienced no inconvenience. The party remained on the Peak about two hours before beginning the descent. Nothing peculiar was noticed in the young man until he had descended about two thousand feet, when some of the party observed his strange remarks and absent-minded condition. It was found on inquiry that he had forgotten nearly everything that had occurred during the day. When he reached Manitou, late in the afternoon, he did not remember at what hotel he had been stop-

ping. He had paid for the hire of his horse, and his guide for his services, in the morning before starting, but on returning had forgotten all about it. When he reached his room in his hotel he had forgotten what he had done with his horse, and started to look for him. He remained in this confused and amnesic condition about thirty-six hours. I fortunately had an opportunity to interview him a few days after the strange occurrence. At the time of my conversation with him he said that he then remembered every incident of the day's journey, of which he was oblivious on the day of the ascent of the Peak. He told me he was not conscious at the time that anything was wrong with his memory, but was conscious of saying foolish things to which he could not help giving expression. He could afterward recall his dazed condition, loss of memory, and the laughter which he provoked among his party. He stated that he had on previous occasions ascended high mountains, some as high and some higher than Pike's Peak, but never before had had a similar experience from mountain climbing."

I have reported this case in full, as it illustrates a freak of memory found in a recent case of insanity which came under my experience. In July, 1887, a gentleman from Boston, member of a mountain climbing club, went to Estes Park, at an elevation of between 8,000 and 9,000 feet. At the end of a week or two he felt, as he expressed it, as though he were in a furnace, a sensation of intense heat, and began to lose flesh rapidly. In July of the present year (1890) I met an Englishman who had been in this country only a short time. He, in company with a number of gentlemen, was driving over some of the high ranges in the neighborhood of Leadville, at an altitude of 11,000 feet. He felt well and was quite hilarious, but suddenly became paretic in his legs and was unable to stand without assistance from a person on each side of him. He experi-

enced no pain. The paresis disappeared as he reached a lower altitude, and he has had no difficulty in walking since. I have heard of one other who was mentally confused in making the ascent of high mountains in Colorado.

So far I have had nothing interesting to report from Professor Pickering, of the Astronomical Department of the Harvard University, owing to the fact that Pike's Peak was abandoned by him and his assistants after the first year (1887) as a point for observation.

*Inflammatory Lesions of the Brain and Cord.*—Under this division of my paper, read in 1887, before the Philadelphia Neurological Society, I gave the opinions of several physicians of Colorado in respect to the influence of the climate. Most of them thought inflammatory lesions of the brain and cord comparatively rare. Dr. Anderson, of Colorado Springs, stated: "The only lesion of the brain with which I have had any experience here has been softening, and I would say, from experience, that long residence in high altitudes is one of the most prolific sources of this affection. A number of cases in 'old timers' have come under my observation, and have proved fatal." Dr. Jacob Reed, Jr., of the same place, thought that he had met with tubercular meningitis more frequently in Colorado Springs than he had in the same number of children either in Philadelphia or Michigan. So far as I know, only three cases of tubercular meningitis occurred in Colorado Springs from 1884 to 1887. The population during these years averaged about 6,000. I do not know the percentage of deaths from tubercular meningitis that occur in the Eastern towns the size of Colorado Springs. One death annually in a population of 6,000 seems to me comparatively small, and if we take into consideration the large proportion of the children of Colorado Springs born of consumptive parents, the death-rate is proportionately smaller to the consumptive



population. It might be that the open-air life led by the children, and the bracing effects of the atmosphere, together with cool nights, even in midsummer, insuring refreshing sleep, enable the issue of consumptive parents to overcome the tendency to the development of the disease. Certainly this seems to be the case with reference to the development of tuberculosis of the lungs in children that are born and reside in Colorado. The dryness of the atmosphere favoring free perspiration is evidently a factor in the prevention of tuberculous and other inflammation of the central nervous system. My experience in Denver leads me to believe that tuberculous affections of the brain are proportionately larger here than in Colorado Springs. During my fourth year in Colorado Springs I saw two cases of infantile paralysis; none during the previous three years. I have observed only four such cases during two years in Denver. I did not hear of a single case of non-traumatic and non-tubercular meningitis during four years' residence in Colorado Springs, and have heard of only one during the past two years in Denver. I have studied six cases of acute myelitis—one of tumor of the cord, five of tumor of the brain, and eleven of chronic systemic degeneration of the cord—during the past two years in Denver, and have been unable to find any points of difference in the histories and progress between these troubles here and those of like nature observed at sea-level. Of their comparative frequency in this altitude I am unable to form an opinion, as most of the cases of gross lesions of the central nervous system observed here have been seen in hospitals in patients from various portions of the State. It is probable that persons suffering from chronic degenerative conditions of the cord experience an apparent improvement in their nervous conditions on coming to Colorado, not, I believe, from the direct influence of the climate on their nervous affections, but, indirectly, on

account of improved condition resulting from the stimulating and bracing effects of the atmosphere. Dr. Solly thinks he has seen temporary good effects produced by a residence in Colorado on chronic inflammatory lesions of the cord.

*Chronic Degeneration of the Brain.*—That mental failure begins earlier in life in persons who have lived and struggled for many years in Colorado, and is in many cases attended by symptoms of chronic degeneration of the brain more frequently than is the case in similar individuals East, is recognized by the profession and laity generally. That this belief is correct, after six years' observation, I have no doubt. The practical question is, Is it due to long residence in high altitudes, as many maintain, or has it been caused by something peculiar, or at least prominent, in the lives and business habits of Colorado's pioneers? To answer this inquiry intelligently, we must consider several factors in the lives of these men. These persons lived in Colorado many years, surrounded by treacherous Indians and still more treacherous desperadoes. The mining interests of the State from 1859 to 1870 were her main and almost her sole resource for those seeking wealth. The uncertainty of fortune and the feverish excitement in the speculative miner's life—prospective millions to-day, realized poverty to-morrow—kept them under great mental strain. For some, to the prolonged mental excitement and worry we may add irregular hours for eating, often insufficient food and sleep for days, and no relaxation for years; and for others we may still add indulgences in alcoholic and venereal excesses; and still for a third class, gambling. Are not these causes sufficient to wear a man out at any altitude and in any climate? What is the cause of the early mental and physical wreck seen in so many of the Wall Street brokers and railroad magnates? Is it altitude? Certainly not.

Then why attribute so much to high altitude as the factor determining the early break-down of persons who have crowded so much worry and mental excitement into so short a space of time? Again, some of the pioneers brought their wives to Colorado with them, and if altitude was the great cause of mental failure, these too should suffer in a similar manner. Practically this is not the case. The female often becomes nervous and sleepless, but she does not suffer in Colorado from chronic brain degeneration in the same proportion as the male sex. I fortunately have had opportunities to examine the brains and blood-vessels of some who have suffered and died in Colorado, comparatively early in life, from chronic brain degeneration. The blood-vessels have been found diseased in every case, and in some slight chronic meningitis has co-existed. I believe arteritis is the primary lesion in the majority of cases of early mental break-down in Colorado. The climate may, and doubtless does, play a small part in the matter, but not nearly so great as has been popularly attributed to it.

*Apoplexy.*—Three years ago Dr. Strickler, of Colorado Springs, with an experience of seventeen years there, and Dr. B. P. Anderson, with ten or twelve years' experience in the same place, stated that they had not seen a case of cerebral hæmorrhagic apoplexy in Colorado. This struck me as being very strange, and after referring to three cases of apoplexy that I had seen, or of which I had personal knowledge, occurring in Colorado Springs in 1887, I added: "I see no reason why hæmorrhagic apoplexy should not be as frequent in Colorado as we find it at sea-level." During the last eighteen months I have either had under my own care, or seen in consultation with other physicians, seventeen cases of apoplexy. I doubt if the climate has much to do *per se* in the production of apoplexy, but I do believe that violent exercise in high altitudes in persons with weak

cerebral arteries is more dangerous than in such persons at low altitudes.

Sunstroke or heat stroke is almost unknown in Colorado. A few years ago it was said never to have been known to occur here. Its absence is accounted for by the active capillary circulation of the skin, by the free evaporation of moisture from the surface of the body, and by the increased amount of watery vapor given off from the pulmonary mucous membrane into the rarefied and dry air. During the summer of 1889 I saw a man who had been overcome and who died from the effects of the heat while working in the Grant Smelter of this city. The day was warm and sultry for Colorado. The man was working near one of the large furnaces in the smelter, and his death was due to artificial heat.

*Paræsthesia*.—Two cases of paræsthesia, one of which was seemingly due to high altitude, have recently come under my observation. After studying them more fully, if they should prove to be as interesting as they now seem, I intend to publish a detailed account of them.









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